In the Claims

Please amend the claims to read as follows:

1. (Currently Amended) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

    (A) an amphiphile comprising a monoglyceride capable of forming a cubic liquid crystalline phase;

    (B) an optional polar solvent; and

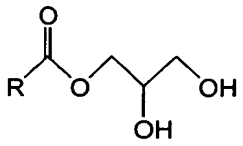
    (C) an additive selected from the group consisting of an ionic anchor, a tether, and combinations thereof;

    and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

    $$1.0=a+b+c$$

    wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and wherein the mass-fractional relationship between a, b and c is $1.0 > a > 0$, $1.0 > b > 0$, $1.0 > c > 0$; and with the proviso that a, b, and c do not fall within a cubic liquid crystalline phase region on a phase diagram representing phase behavior of (A), (B), and (C).

2. (Original) The precursor of claim 1, wherein (A) ~~is~~ the monoglyceride has ~~having~~ the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

3. (Original) The precursor of claim 1, wherein (B) is a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof.

4. (Currently Amended) The precursor of claim 1, wherein (C) is an ionic anchor selected from the group consisting of positively charged surfactants and negatively charged surfactants.

5. (Original) The precursor of claim 4, wherein the anchor is a positively charged surfactant selected from the group consisting of quaternary surfactants, imidazoline based surfactants, substituted amino acids, and combinations thereof.

6. (Original) The precursor of claim 4, wherein the anchor is a negatively charged surfactant selected from the group consisting of alkyl carboxylates, modified carboxylates, isethionates, mono- and di-phosphate esters, alkyl sulphates, sulphonates, alkyl sulfonates, olefin sulfonates, alkyl benzene sulphonates, sulphosuccinates, and combinations thereof.

7. (Original) The precursor of claim 1, wherein (C) is a tether selected from the group consisting of derivatized polysaccharides, linear substituted polymers, star polymers, polypeptides, and polynucleotides, and combinations thereof.

8. (Original) The precursor of claim 7, wherein the tether is a derivatized polysaccharide selected from the group consisting of cellulose derivatives, chitin derivatives, starch derivatives, glycogen, glycoaminogylcans, lignan-based polymers, and combinations thereof.

9. (Original) The precursor of claim 7, wherein the tether is a linear substituted polymer selected from the group consisting of vinyl polymers, polyamines, polyamides, polyesters, polyphosphates, polysiloxanes, polycarbonates, polyethoxylates, and combinations thereof.

10. (Original) The precursor of claim 7, wherein the tether is a polypeptide selected from the group consisting of polylysine, lipoproteins, and combinations thereof.

11. (Original) The precursor of claim 1 further comprising: (D) an active ingredient.

12. (cancelled) The precursor of claim 11 wherein said precursor provides the topical delivery of a pharmaceutical, cosmetic active compound, and combinations thereof.

13. (Original) The precursor of claim 11 wherein said precursor provides nutrient delivery,
encapsulation, stabilization, enzyme delivery, generate trans-membrane protein crystal structures, and combinations thereof.

14. (Currently Amended) A bulk cubic liquid crystalline gel suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

(A) an amphiphile comprising a monoglyceride capable of forming a cubic liquid crystalline phase;

(B) a polar solvent; and

(C) an additive selected from the group consisting of an ionic anchor, a tether, and combinations thereof, and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and wherein the mass-fractional relationship between a, b and c is $0.8 > a > 0.5$, $0.8 > b > 0.5$, $0.1 > c > 0$ ~~1.0>a>0, 1.0>b>0, 1.0>c>0~~;

and with the proviso that a, b, and c fall within a cubic liquid crystalline phase region on a phase diagram representing phase behavior of (A), (B), and (C).

15. (Currently Amended) The bulk cubic liquid crystalline gel of claim 14 further comprising an active ingredient (D), wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, hydrochloride, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, a skin moisturizer, vitamins, minerals and combinations thereof.

16. (Currently Amended) A dispersion of cubic liquid crystalline gel particles suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

(A) an amphiphile comprising a monoglyceride capable of forming a cubic liquid crystalline phase;

(B) a polar solvent; and

(C) an additive selected from the group consisting of an ionic anchor, a tether, and combinations thereof;

wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and wherein the mass-fractional relationship between a, b and c is $0.15 > a > 0.05$, $0.95 > b > 0.8$, $0.05 > c > 0.01$ ~~1.0>a>0, 1.0>b>0, 1.0>c>0~~; and with the proviso that a, b, and c fall within a region representing cubic liquid crystalline phase in combination with at least one other phase on a phase diagram representing phase behavior of (A), (B), and (C), with the proviso that the dispersion has a form of functionalized cubic liquid crystalline gel particles dispersed in the other phase.

17. (currently amended) A method for preparing the cubic liquid crystalline phase precursor of Claim 1 suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients, comprising the steps of: combining (A) an amphiphile capable of forming a cubic liquid crystalline phase, (B) an optional solvent, (C) an additive selected from the group consisting of an ionic anchor, a tether, and combinations thereof, and (D) an active ingredient, wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and wherein the mass-fractional relationship between a, b and c is $1.0 > a > 0$, $1.0 > b > 0$, $1.0 > c > 0$; and with the proviso that a, b, and c do not fall within a cubic liquid crystalline phase region on a phase diagram representing phase behavior of (A), (B), and (C), and with the proviso

that amounts of each ingredient in the composition are such that a cubic liquid crystalline phase forms upon occurrence of a stimulus.

18. (Original) The method of claim 17, wherein (A) is a liquid, and ingredients (A), (B), and (C), and (D) are combined by mixing.

19. (Original) The method of claim 17, wherein (A) is a solid, and (A), (B), (C), and (D) are combined by a method selected from the group consisting of:

(a) heating (A) to a temperature greater than its melting point and then mixing (A) with ingredients (B), (C), and (D); and

(b) fragmenting (A) into solid particles and thereafter combining (A) and (B), (C), and (D).

20. (Original) The method of claim 17, wherein the stimulus is selected from the group consisting of:

(a) addition of a specified material selected from the group consisting of additional amphiphile and solvent;

(b) removal of a material selected from the group consisting of a portion of the amphiphile, and solvent;

(c) a temperature change;

(d) a pH change;

(e) addition of a salt;

(f) a pressure change; and

(g) combinations thereof.

21. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile comprising a monoglyceride, which is capable of forming a cubic liquid crystalline phase;

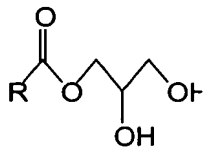
B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of an ionic anchor, wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and , wherein the mass-fractional relationship of a, b and c is $0.8 \geq a \geq 0.5$, $0.8 \geq b \geq 0.5$, $0.1 \geq c > 0$.

22. (NEW) The precursor of claim 21, wherein the monoglyceride is of the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

23. (NEW) The precursor of claim 21, wherein (C) is an ionic anchor selected from the group consisting of positively charged surfactants and negatively charged surfactants.

24. (NEW) The precursor of claim 23, wherein the anchor is a positively charged surfactant selected from the group consisting of quaternary surfactants, imidazoline based surfactants, substituted amino acids, and combinations thereof.

25. (NEW) The precursor of claim 23, wherein the anchor is a negatively charged surfactant selected from the group consisting of alkyl carboxylates, modified carboxylates, isethionates, mono- and di-phosphate esters, alkyl sulphates, sulphonates, alkyl sulphonates, olefin sulphonates, alkyl benzene sulphonates, sulphosuccinates, and combinations thereof.

26. (NEW) The precursor of claim 21 further comprising (D), an active ingredient.

27. (NEW) The precursor of claim 26 wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, hydrochloride, nitroglycerin, prilocaine,

tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, a skin moisturizer, vitamins, minerals, and combinations thereof.

28. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile comprising a monoglyceride, which is capable of forming a cubic liquid crystalline phase;

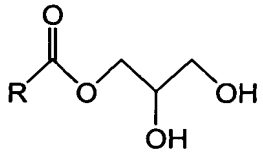
B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of tethers, and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and, wherein the mass-fractional relationship is $0.8 \geq a \geq 0.5$, $0.8 \geq b \geq 0.5$, $0.1 \geq c > 0$.

29. (NEW) The precursor of claim 28, wherein the monoglyceride is of the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

30. (NEW) The precursor of claim 28, wherein (C) is a tether selected from the group consisting of derivatized polysaccharides, linear substituted polymers, star polymers, polypeptides, and polynucleotides, and combinations thereof.

31. (NEW) The precursor of claim 30, wherein the tether is a derivatized polysaccharide selected from the group consisting of cellulose derivatives, chitin derivatives, starch derivatives, glycogen, glycoaminogylcans, lignan-based polymers, and combinations thereof.

32. (NEW) The precursor of claim 30, wherein the tether is a linear substituted polymer selected from the group consisting of vinyl polymers, polyamines, polyamides, polyesters, polyphosphates, polysiloxanes, polycarbonates, polyethoxylates, and combinations thereof.

33. (NEW) The precursor of claim 30, wherein the tether is a polypeptide selected from the group consisting of polylysine, lipoproteins, and combinations thereof.

34. (NEW) The precursor of claim 28 further comprising (D), an active ingredient.

35. (NEW) The precursor of claim 34 wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

36. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile comprising a monoglyceride, which is capable of forming a cubic liquid crystalline phase;

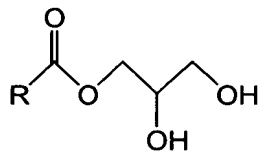
B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of an ionic anchors, and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and , wherein the mass-fractional relationship between a , b and c is $0.15 \geq a \geq 0.05$, $0.95 \geq b \geq 0.8$, $0.05 \geq c \geq 0.01$.

37. (NEW) The precursor of claim 36, wherein the monoglyceride is of the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

38. (NEW) The precursor of claim 36, wherein (C) is an ionic anchor selected from the group consisting of positively charged surfactants and negatively charged surfactants.

39. (NEW) The precursor of claim 38, wherein the anchor is a positively charged surfactant selected from the group consisting of quaternary surfactants, imidazoline based surfactants, substituted amino acids, and combinations thereof.

40. (NEW) The precursor of claim 38, wherein the anchor is a negatively charged surfactant selected from the group consisting of alkyl carboxylates, modified carboxylates, isethionates, mono- and di-phosphate esters, alkyl sulphates, sulphonates, alkyl sulphonates, olefin sulphonates, alkyl benzene sulphonates, sulphosuccinates, and combinations thereof.

41. (NEW) The precursor of claim 36 further comprising (D), an active ingredient.

42. (NEW) The precursor of claim 41 wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

43. (NEW) A cubic liquid crystalline phase precursor <u>suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients</u> comprising:

A) an amphiphile comprising a monoglyceride, which is capable of forming a cubic liquid crystalline phase;

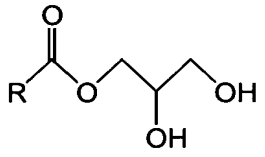
B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of tethers, and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and , wherein the mass-fractional relationship between a, b and c is $0.15 \geq a \geq 0.05$, $0.95 \geq b \geq 0.8$, $0.05 \geq c \geq 0.01$.

44. (NEW) The precursor of claim 43, wherein the monoglyceride is of the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

45. (NEW) The precursor of claim 43, wherein (C) is a tether selected from the group consisting of derivatized polysaccharides, linear substituted polymers, star polymers, polypeptides, and polynucleotides, and combinations thereof.

46. (NEW) The precursor of claim 45, wherein the tether is a derivatized polysaccharide selected from the group consisting of cellulose derivatives, chitin derivatives, starch derivatives, glycogen, glycoaminogylcans, lignan-based polymers, and combinations thereof.

47. (NEW) The precursor of claim 45, wherein the tether is a linear substituted polymer selected from the group consisting of vinyl polymers, polyamines, polyamides, polyesters, polyphosphates, polysiloxanes, polycarbonates, polyethoxylates, and combinations thereof.

48. (NEW) The precursor of claim 45, wherein the tether is a polypeptide selected from the group consisting of polylysine, lipoproteins, and combinations thereof.

49. (NEW) The precursor of claim 43 further comprising (D), an active ingredient.

50. (NEW) The precursor of claim 49 wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine

HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

51. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile comprising a monoglyceride, which is capable of forming a cubic liquid crystalline phase;

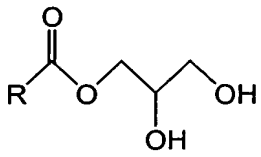
B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of an ionic anchor, and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and, wherein the mass-fractional relationship is between a, b and c is $1.0 > a > 0.7$, $0.30 \geq b > 0$, $0.1 > c > 0$.

52. (NEW) The precursor of claim 51, wherein the monoglyceride is of the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

53. (NEW) The precursor of claim 51, wherein (C) is an ionic anchor selected from the group consisting of positively charged surfactants and negatively charged surfactants.

54. (NEW) The precursor of claim 53, wherein the anchor is a positively charged surfactant selected from the group consisting of quaternary surfactants, imidazoline based surfactants, substituted amino acids, and combinations thereof.

55. (NEW) The precursor of claim 53, wherein the anchor is a negatively charged surfactant selected from the group consisting of alkyl carboxylates, modified carboxylates, isethionates, mono- and di-phosphate esters, alkyl sulphates, sulphonates, alkyl sulphonates, olefin sulphonates, alkyl benzene sulphonates, sulphosuccinates, and combinations thereof.

56. (NEW) The precursor of claim 51 further comprising (D), an active ingredient.

57. (NEW) The precursor of claim 56 wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

58. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile comprising a monoglyceride, which is capable of forming a cubic liquid crystalline phase;

B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

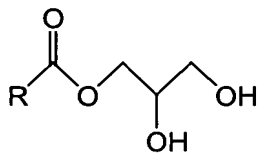
C) an additive selected from the group consisting of tethers, and wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and , wherein the mass-fractional

relationship between a, b and c is $1.0 > a > 0.7$, $0.30 \geq b > 0$, $0.1 > c > 0$; and wherein the precursor is used for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients.

59. (NEW) The precursor of claim 58, wherein the monoglyceride is of the formula:



wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

60. (NEW) The precursor of claim 58, wherein (C) is a tether selected from the group consisting of derivatized polysaccharides, linear substituted polymers, star polymers, polypeptides, and polynucleotides, and combinations thereof.

61. (NEW) The precursor of claim 60, wherein the tether is a derivatized polysaccharide selected from the group consisting of cellulose derivatives, chitin derivatives, starch derivatives, glycogen, glycoaminogylcans, lignan-based polymers, and combinations thereof.

62. (NEW) The precursor of claim 60, wherein the tether is a linear substituted polymer selected from the group consisting of vinyl polymers, polyamines, polyamides, polyesters, polyphosphates, polysiloxanes, polycarbonates, polyethoxylates, and combinations thereof.

63. (NEW) The precursor of claim 60, wherein the tether is a polypeptide selected from the group consisting of polylysine, lipoproteins, and combinations thereof.

64. (NEW) The precursor of claim 58 further comprising (D), an active ingredient.

65. (NEW) The precursor of claim 64 wherein the active ingredient is a pharmaceutical or cosmetic compound selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

66. (NEW) A cubic liquid crystalline phase precursor <u>suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients</u> comprising:

A) an amphiphile selected from the group consisting of 3,7,11,15-tetramethyl-1,2,3-hexadecanetriol, phytanetriol, N-2-alkoxycarbonyl derivatives of N-methylglucamine, unsaturated fatty acid monoglycerides, glycerol monooleate, glycerol monostearate, monolinolein, monoolein, $C_{12}EO_2$, $C_{12}EO_{23}$, and $C_{16}EO_3$, wherein EO represents an ethylene oxide group, and combinations thereof, which are capable of forming a cubic liquid crystalline phase;

B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of ionic anchors and tethers, wherein the ionic anchors are selected from dioctyldecylamine hydrogen chloride, di(canola ethyl ester) dimethyl amine chloride, and potassium oleate, and mixtures thereof, and the tether is selected from derivatized polysaccharides and linear substituted polymers and mixtures thereof;

wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and the mass-fractional relationship between a, b and c is $0.8 \geq a \geq 0.5$, $0.8 \geq b \geq 0.5$, $0.1 \geq c > 0$.

67. (NEW) The precursor of claim 66 further comprising (D), an active ingredient selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

68. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile selected from the group consisting of 3,7,11,15-tetramethyl-1,2,3-hexadecanetriol, phytanetriol, N-2-alkoxycarbonyl derivatives of N-methylglucamine, unsaturated fatty acid monoglycerides, glycerol monooleate, glycerol monostearate, monolinolein, monoolein, $C_{12}EO_2$, $C_{12}EO_{23}$, and $C_{16}EO_3$, wherein EO represents an ethylene oxide group, and combinations thereof, which are capable of forming a cubic liquid crystalline phase;

B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of ionic anchors and tethers, wherein the ionic anchors are selected from

dioctyldecylamine hydrogen chloride, di(canola ethyl ester) dimethyl amine chloride, and potassium oleate, and mixtures thereof and the tether is selected from derivatized polysaccharides and linear substituted polymers and mixtures thereof;

wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and the mass-fractional relationship between a, b and c is $0.15 \geq a \geq 0.05$, $0.95 \geq b \geq 0.8$, $0.05 \geq c \geq 0.01$; and wherein the precursor is used for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients.

69. (NEW) The precursor of claim 68 further comprising (D), an active ingredient selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

70. (NEW) A cubic liquid crystalline phase precursor suitable for topical application to skin, hair, fabric, and plant surfaces, for the delivery of pharmaceutical and/or cosmetic active ingredients comprising:

A) an amphiphile selected from the group consisting of 3,7,11,15-tetramethyl-1,2,3-hexadecanetriol, phytanetriol, N-2-alkoxycarbonyl derivatives of N-methylglucamine, unsaturated fatty acid monoglycerides, glycerol monooleate, glycerol monostearate, monolinolein, monoolein, $C_{12}EO_2$, $C_{12}EO_{23}$, and $C_{16}EO_3$, wherein EO represents an ethylene oxide group, and combinations thereof, which are capable of forming a cubic liquid crystalline phase;

B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof; and

C) an additive selected from the group consisting of an ionic anchors and tethers, wherein the ionic anchors are selected from dioctyldecylamine hydrogen chloride, di(canola ethyl ester) dimethyl amine chloride, and potassium oleate and mixtures thereof, and the tether is selected from derivatized polysaccharides and linear substituted polymers and mixtures thereof;

wherein (A), (B), and (C) are present in mass fractions relative to each other such that

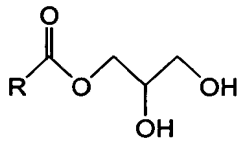
$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and the mass-fractional relationship between a, b and c is $1.0 > a > 0$, $1.0 > b > 0$, $1.0 > c > 0$.

71. (NEW) The precursor of claim 70 further comprising (D), an active ingredient selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.

72. (New) A cosmetic/pharmaceutical composition for topical application comprising a cubic liquid crystalline phase precursor comprising:

(A) an amphiphile capable of forming a cubic liquid crystalline phase, wherein the amphiphile is a monoglyceride having the formula:



and R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms;

(B) a polar solvent selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof;

(C) an additive selected from the group consisting of an ionic anchor, a tether, and combinations thereof; and

(D) an active ingredient;

wherein (A), (B), and (C) are present in mass fractions relative to each other such that

$$1.0=a+b+c$$

wherein a is the mass fraction of (A), b is the mass fraction of (B), and c is the mass fraction of (C), and wherein the mass-fractional relationship between a, b and c is $1.0 > a > 0$, $1.0 > b > 0$, $1.0 > c > 0$; and with the proviso that a, b, and c do not fall within a cubic liquid crystalline phase region on a phase diagram representing phase behavior of (A), (B), and (C).

73. (New) The cosmetic/pharmaceutical composition of claim 72, wherein (C) is an ionic anchor selected from the group consisting of positively charged surfactants and negatively charged surfactants.

74. (New) The cosmetic/pharmaceutical composition of claim 73, wherein the anchor is a positively charged surfactant selected from the group consisting of quaternary surfactants, imidazoline based surfactants, substituted amino acids, and combinations thereof.

75. (New) The cosmetic/pharmaceutical composition of claim 73, wherein the anchor is a negatively charged surfactant selected from the group consisting of alkyl carboxylates, modified carboxylates, isethionates, mono- and di-phosphate esters, alkyl sulphates, sulphonates, alkyl sulfonates, olefin sulfonates, alkyl benzene sulphonates, sulphosuccinates, and combinations thereof.

76. (New) The cosmetic/pharmaceutical composition of claim 73, wherein (C) is a tether selected from the group consisting of derivatized polysaccharides, linear substituted polymers, star polymers, polypeptides, and polynucleotides, and combinations thereof.

77. (New) The cosmetic/pharmaceutical composition of claim 76, wherein the tether is a derivatized polysaccharide selected from the group consisting of cellulose derivatives, chitin derivatives, starch derivatives, glycogen, glycoaminogylcans, lignan-based polymers, and combinations thereof.

78. (New) The cosmetic/pharmaceutical composition of claim 76, wherein the tether is a linear substituted polymer selected from the group consisting of vinyl polymers, polyamines, polyamides, polyesters, polyphosphates, polysiloxanes, polycarbonates, polyethoxylates, and combinations thereof.

79. (New) The cosmetic/pharmaceutical composition of claim 76, wherein the tether is a polypeptide selected from the group consisting of polylysine, lipoproteins, and combinations thereof.

80. (New) The cosmetic/pharmaceutical composition of claim 72, wherein said active ingredient is selected from the group consisting of non-steroidal anti-inflammatory drugs, metronidazole, acetyl salicylic acid, clotrimazole, insulin, lidocaine, nitroglycerin, prilocaine, tetracycline hydrochloride, benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, skin moisturizers, vitamins, minerals, and combinations thereof.